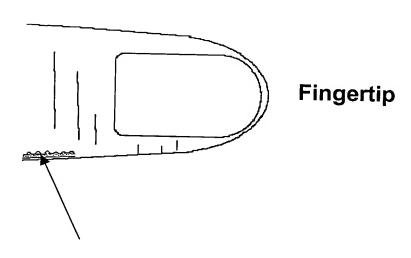
Sheet 1 of 19 Filed: HEREWITH
Title: Non-invasive measurement of analytes
Inventors: Workman and Lambert
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo; Telephone: (617) 542-6000

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# Reporter and Marker colors

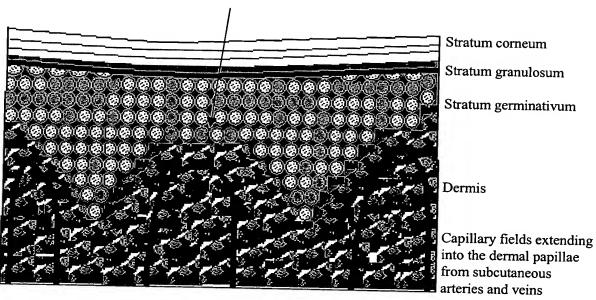
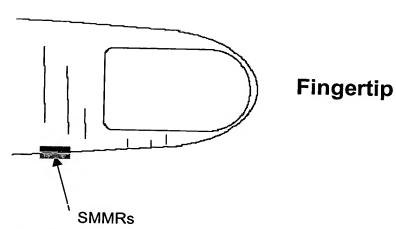


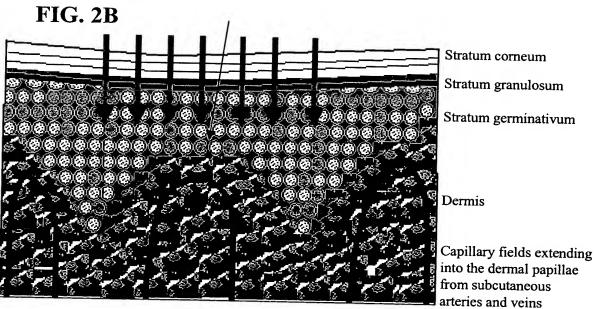
FIG. 1

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Inventors: Workman and Lambert
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## FIG. 2A

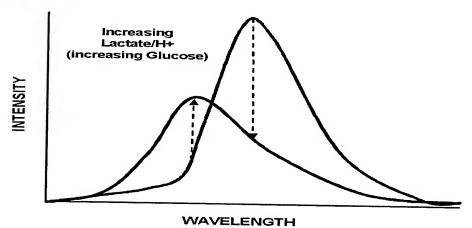




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## FIG. 3A



Stratum corneum
Stratum granulosum
Stratum germinativum

Dermis

Capillary fields extending into the dermal papillae from subcutaneous arteries and veins

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FIG. 4A

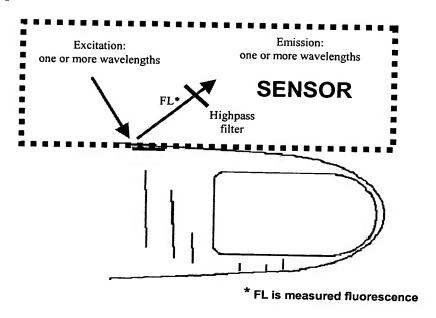
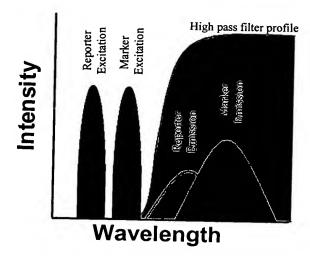


FIG. 4B



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FIG. 5A

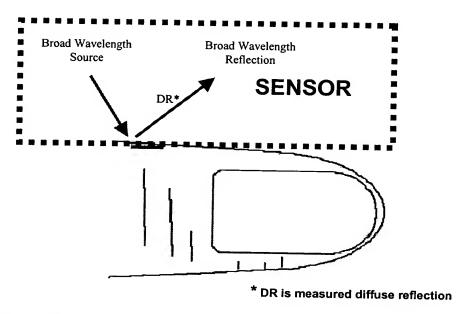
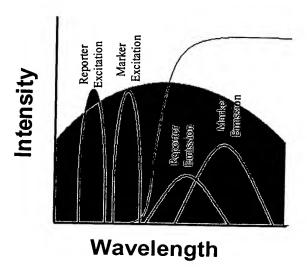


FIG. 5B



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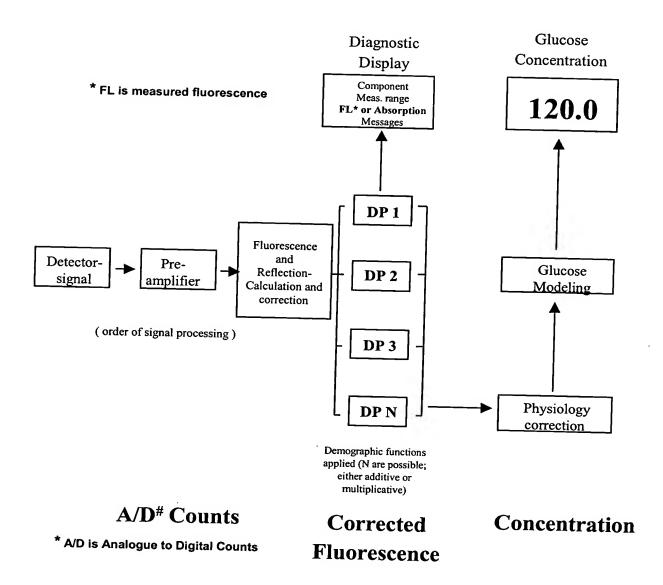


FIG. 6

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#### 7/19 A/D-converter produces Sensor the counts for for Reporter, Marker, and Reflection signals \* A/D is Analogue to Digital Counts counts Reporter Demographic/Physiology functions applied to [G<sub>C</sub>] $= [Glucose_C] = [G_C]$ (N types available) f(D) $[G_C]$ $[G_D]$ f(D) $[G_c]$ $[G_D]$ Correction of component signal Correction of component signal with 1 through N Demographic Functions f(D) with 1 through N Physiology resulting in [GD] Functions f(P) resulting in [G<sub>P</sub>] Final Corrected Blood Glucose [G<sub>BG</sub>] **Blood Glucose** Concentration [G<sub>BG</sub>]output on display Model of [G<sub>P</sub>] versus [G<sub>BG</sub>]

FIG. 7

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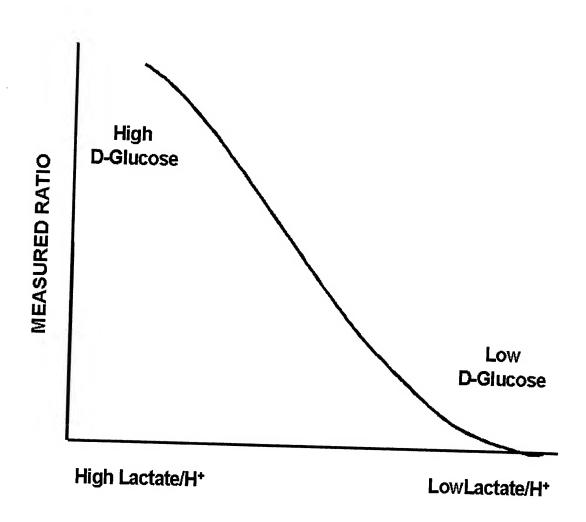
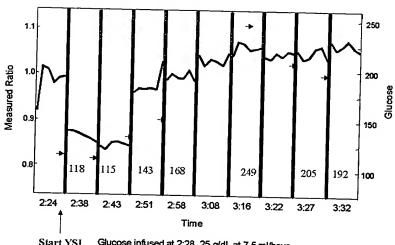


FIG. 8

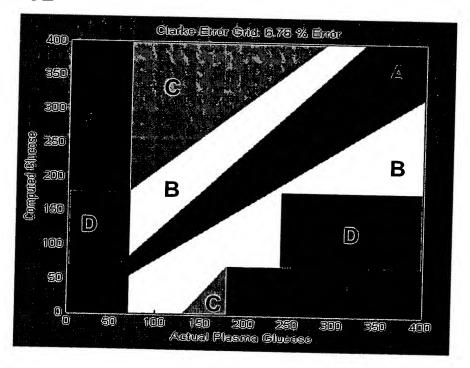
Sheet 9 of 19
Title: Non-invasive measurement of analytes
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FIG. 9A

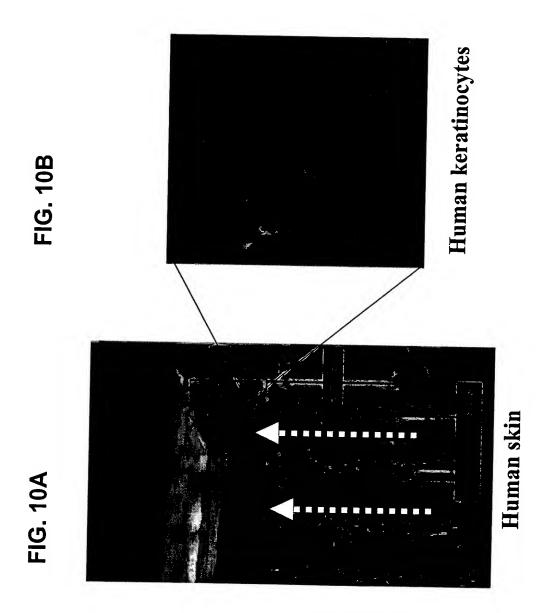


Start YSI Glucose infused at 2:28, 25 g/dL at 7.5 ml/hour

FIG. 9B



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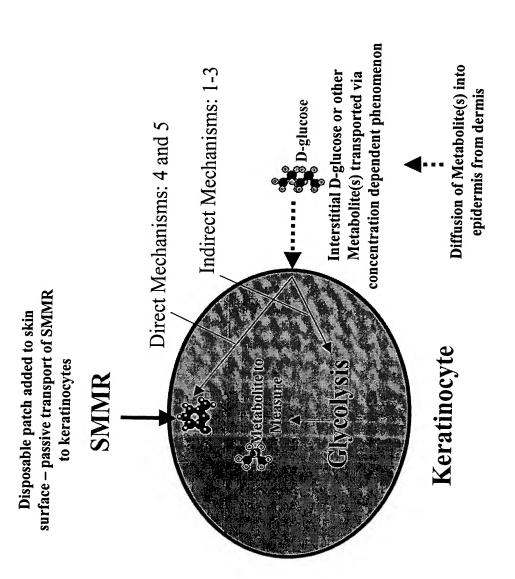
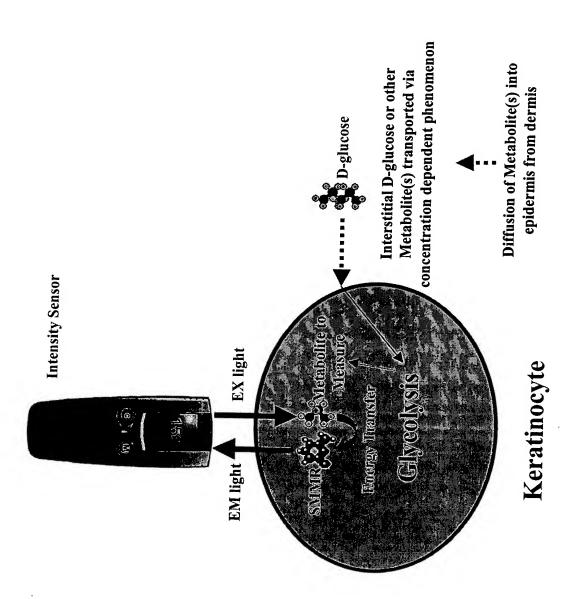
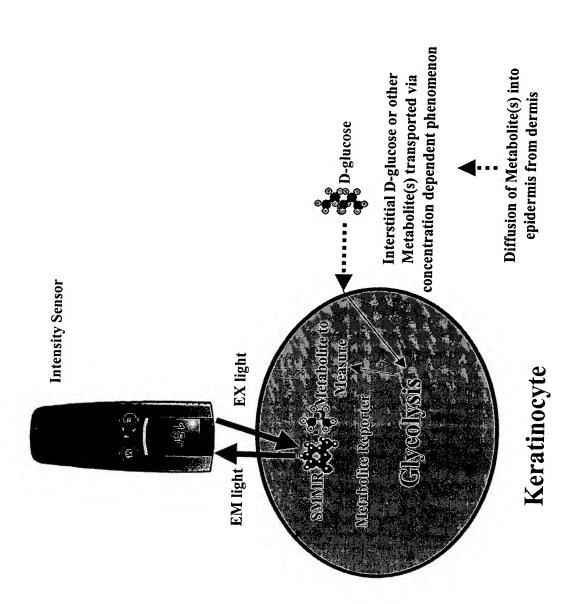


FIG. 11

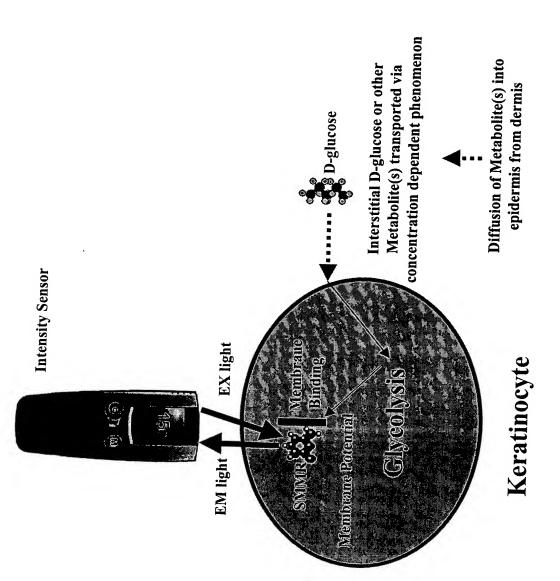
Sheet 12 of 19
Title: Non-invasive measurement of analytes
Inventors: Workman and Lambert
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo; Telephone: (617) 542-6000 Filed: HEREWITH



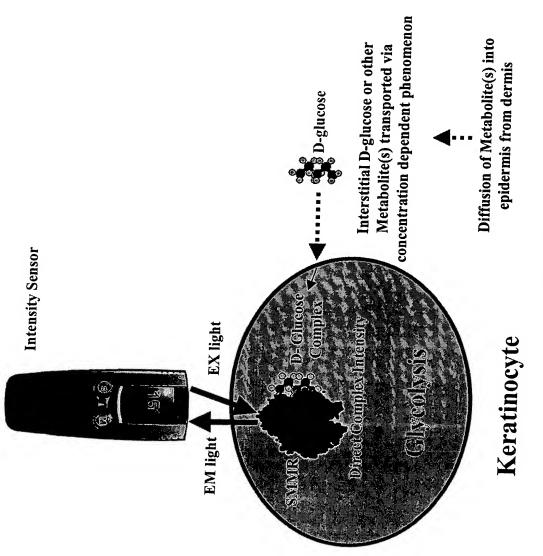
Sheet 13 of 19
Title: Non-invasive measurement of analytes
Inventors: Workman and Lambert
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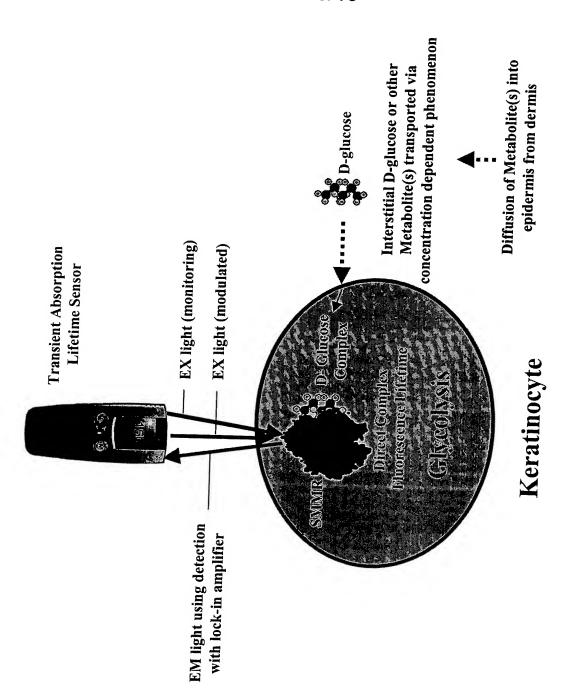
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Title: Non-invasive measurement of analytes
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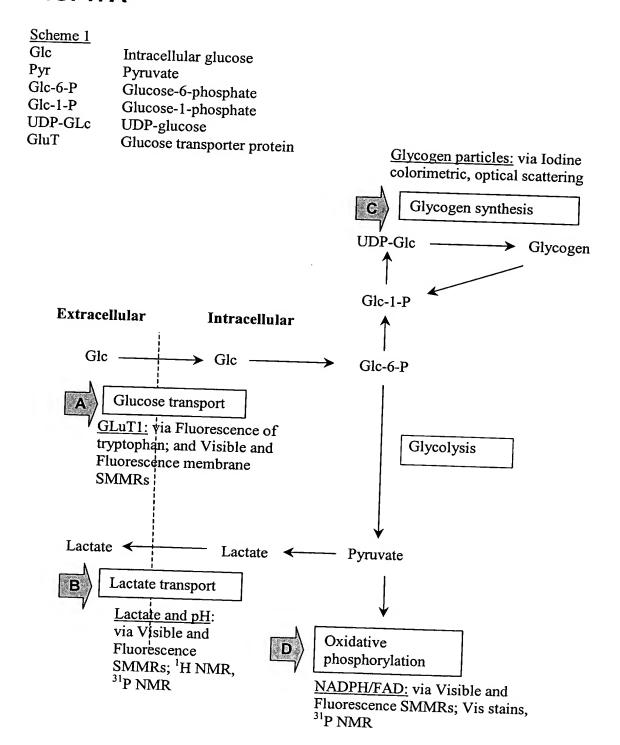
Title: Non-invasive measurement of analytes

Inventors: Workman and Lambert

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## FIG. 17A



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#### FIG. 17B

## Scheme 2. Overview of metabolic pathways for glucose in epidermis

#### FIG. 17C

# Scheme 3. Structure of generic pH sensitive dye for specific action as a lactate/H<sup>+</sup> SMMR

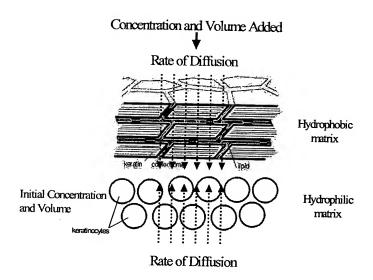
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Scheme 4. In Vivo Calibration Issues

## FIG. 17D

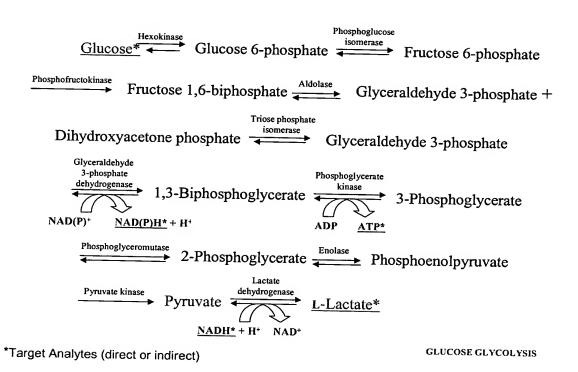


FIG. 18